

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number
WO 2005/041616 A1

(51) International Patent Classification⁷: H04R 17/00, 7/04, H01L 41/09

(21) International Application Number: PCT/GB2004/004314

(22) International Filing Date: 11 October 2004 (11.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0324051.2 14 October 2003 (14.10.2003) GB

(71) Applicant (for all designated States except US): 1... LIMITED [GB/GB]; St John's Innovation Centre, Cowley Road, Cambridge CB4 0WS (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): TOPLISS, Richard [GB/GB]; 43 Bishops Road, Trumpington, Cambridge CB2 2NQ (GB).

(74) Agents: MERRYWEATHER, Colin, Henry et al.; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

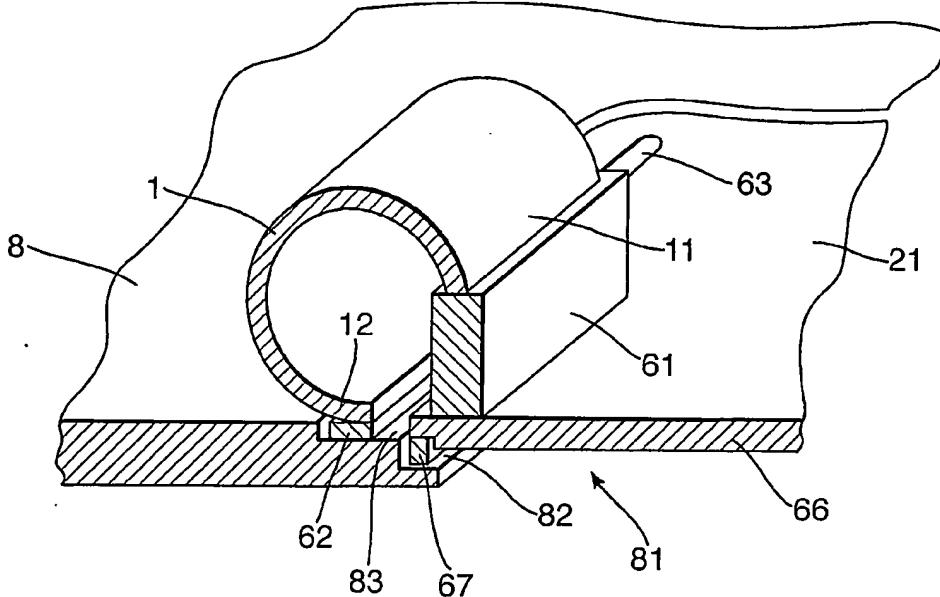
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: LOUDSPEAKER



WO 2005/041616 A1



(57) Abstract: A loudspeaker comprises a support (8) which may be a portion of the housing of an electronic device and a diaphragm (21) mounted on the support (8). A piezoelectric actuator (1) arranged to bend on activation providing relative movement between two ends of the actuator (1) is coupled at each of its ends (11) and (12) to the diaphragm (21) to vibrate the diaphragm (21) on activation and generate sound. One end of the actuator (1) coupled to a portion (62) of the diaphragm (21) at the edge of the diaphragm (21) is fixed relative to the support (8).



Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.